SOVIET JOURNAL OF AUTOMATION AND INFORMATION SCIENCES
CONTENTS FOR 1988

Number 1

	English Page	Russian Page
MODELING OF COMPLEX SYSTEMS		
A.G. Ivakhnenko, Ye.N. Fateyeva, and N.A. Ivakhnenko: Nonparametric GMDH Forecasting Models, Part 1. Sorting the Bayes or Wald Formulas . . .	1	3
G.M. Bakan, M.Yu. Vasil'yev, and N.N. Sal'nikov: Convergence of Ellipsoidal Estimation Algorithms	9	10
N.A. Zinchuk: Mutual Transformation of Continuous and Discrete Models of Linear Dynamic Systems, Part 3. Error Estimation	19	19
Yu.L. Kocherga and F.A. Abdullayev: Minimax Estimation of Linear Regression Parameters for J-Optimal Forecasting	24	22
AUTOMATIC CONTROL THEORY AND ITS APPLICATION		
R.M. KUKULIYEV, Application of Invariance Theory to the Synthesis of Inertial Damped Navigational Systems for Complex Motion of an Object . .	31	29
MATHEMATICAL METHODS OF OPTIMIZATION AND CONTROL		
V.L. Volkovich, G.V. Kolenov, and S.O. Mashchenko: An Algorithm for Solving a Linear Optimization Problem in a Distributed System	40	38
L.P. Golubev and L.F. Khilyuk: Statistical Methods in the Optimization of Perturbed-Structure Technological Flows	50	46
A.Ye. Radiyevskiy: Existence of Solutions in Dynamic Problems of Multicriterion Optimization	55	50
G.R. Gerkhardt: Stimulation and Control of Microeconomic Systems, Part I. Phenomenological Foundations	62	57
Yu.A. Yegorov, V.I. Yegorova, G.O. Tal'fel'dt, and N.P. Kabanova: Analysis of Quantitative Relationships between Electrophysiological Parameters of Acupuncture Points and Certain Physiological Parameters . . .	68	63
V.G. Il'ichev: Possible Mechanism for Adaptation in Models of Ecological Systems	73	67
L.A. Gnativ: A Fast-Transform Algorithm for Hamming and Reed-Muller Codes	77	75
N.A. Semenov and D.A. Zinov'yev: An Algorithm for Analyzing the Adequacy of Models with Separation of Pseudoparallel Observations	80	77
V.S. Stepashko and N.A. Zinchuk: Algorithms for Calculating the Locus of Minima for a Criterion of Accuracy of Models	85	82
O.A. Dyshin: Asymptotic Properties of Noise-Immunity for Criteria of Model Accuracy	91	87

Number 2

	English Page	Russian Page
DATA-PROCESSING METHODS		
A.G. Ivakhnenko and N.A. Ivakhnenko: Nonparametric GMDH Predicting Models Part 2. Indicative Systems for Selective Modeling, Clustering, and Pattern Recognition	1	3

	English Page	Russian Page
V.I. Vasil'yev, K.A. Bekmuratov, and F.P. Ovsyannikova: The Use of Poly-Attributes in Training Problems for Pattern Recognition by the Method of Limiting Simplifications	11	12
MODELING OF COMPLEX SYSTEMS		
I.A. Müller: The Development of Selective Methods of Modeling in East Germany	17	18
N.R. Kondratenko, V.N. Mizernyy, and B.I. Mokin: One Way of Solving the Heat-Flow Equation in Identification and Control Problems	29	30
MATHEMATICAL METHODS OF OPTIMIZATION AND CONTROL		
Z.Zh. Akhmetzhanova and G.M. Bakan: A Finitely Converging Algorithm for Solving a Combined System of Linear Equations and Inequalities	33	34
V.V. Gritsyk and R.M. Palenichka: Adaptive Smoothing of Signals on the Basis of Piecewise-Polynomial Approximation	45	43
N.A. Ryabchikova, V.V. Shul'govskiy, and T.A. Adzhimolayev: Specifics of the Structure of Algorithms of Human Behavior in Formal Environments	53	57
V.A. Pavlov, A.V. Telezhnikov, L.A. Savchuk, and Yu.G. Kostrikin: Classification Algorithms in Diagnostic Systems	57	61
CONCISE INFORMATION		
B.L. Vishnevskiy and A.L. Ruderman: Recursive Estimation of a Polynomial Regression Line	62	67
V.V. Godyna and V.S. Stepashko: Modeling the Process of Smelting Silico-manganese Alloys in an Electric Furnace	68	71
V.I. Gostev: Optimal Control of Linear Plants in Control Systems with Digital Controllers and Linearly Varying Input	73	75
BRIEF COMMUNICATIONS		
M.A. Adasovskaya, B.I. Adasovskiy, and T.B. Kirillova: Mathematical Tools for Modeling the Diagnostics of the Functional State of an Operator in an Ergatic Control System	78	72
REVIEWS AND DISCUSSIONS		
The Fiftieth Anniversary of Publishing Professor G.V. Shchipanov's Work: "Theory and Methods of Design of Automatic Regulators"	82	80

Number 3

INFORMATION PROCESSING		
A.G. Ivakhnenko, N.A. Ivakhnenko, Yu.V. Kostenko, I.A. Myuller, A.P. Sarychev, Yu.P. Yurachkovskiy: Nonparametric Forecasting GMDH Models	1	3
S.N. Bevz: Consistent Metrization of Qualitative Attributes	15	17
V.I. Vasil'yev, K.A. Bekmuratov, V.I. Sushko, and R.I. Tsoy: Selection of Binary Pseudo-Attributes in the Process of Learning Pattern Recognition	21	23
MODELING OF COMPLEX SYSTEMS		
N.A. Zinchuk: Conversion of Minimax Parameter Estimation Problems to a System of Algebraic Equations	26	29
V.V. Volosov, A.S. Kalita, and Ye.A. Nizhnichenko: Investigation of One Form of Nonstochastic Identification Algorithms That Uses the Lyapunov Direct Method	32	34
V.I. Kudin: A Relaxational Scheme for Solving a Linear Programming Problem Using the Sequential Analysis Method	41	42

	English Page	Russian Page
V.V. Pavlov, V.V. Kazakov, A.N. Voronin, O.B. Kerber, and V.A. Mayorov: Multi-Criterial Optimization of the Quality of Processes in a Dynamic System	47	51
ECONOMIC AND MANAGEMENT SYSTEMS		
G.R. Gerhardt: Stimulation and Control of Microeconomic Systems. Part 2. Self-Organizing Mechanism of Economic Stimulation of Labor Productivity	53	48
BRIEF NOTES		
G.L. Brodetskiy: Timer-Driven Control of Process of Operation of Computing Systems with Parallel Access to Memory	59	54
D.I. Zelinskiy: Analysis of the Effect of a Concentrated Interference on the Reliabilty of the Frequency-Phase Signal Reception Method	62	56
V.A. Kas'yanov: Conditional Filtering of Discrete Random Processes	66	58
S.F. Kozubovskiy and V.V. Kupriyanov: Application of the GMDH to the Design of Ventilation Systems in Mine Shafts	71	63
V.G. Kolobov: A Method for Increasing the Stability of the Numerical Solution of Differential Equation Systems	74	65
A.S. Kulik: Diagnosticability of a Class of Nonlinear Systems	82	72
Yu.Ya. Ledyankin: Accelerated Method of Multiplying Numbers Represented in Sequential Code	88	76
A.P. Nesenyuk: The Practical Value of the Least Squares Method When the Interference is Additive	95	82
O.V. Nikitenko and V.N. Semenov: The Geometric Structure of the Phase Space of a Dynamic System with Constraints at a Nonsingular Point	101	87
I.A. Popov, V.V. Skvortsov, and T.P. Makukhina: Sequential Analysis Methodology for the Investigation and Design of Large Technological Systems by a Collection of Additive and Non-Additive Quality Indices	105	90

Number 4

MODELING OF COMPLEX SYSTEMS		
M.M. Lychak: Digital Control Distributed-Parameter Objects	1	3
N.A. Zinchuk: Mutual Transform of Continuous and Discrete Models of Linear Dynamic Systems. Part 4. Resolution of the Ambiguity of the Inverse Transform	9	10
A.P. Sarychev: Solution of the GMDH Partitioning Problem When Calculating the Regularity Criterion in an Active Experiment	18	19
AUTOMATIC CONTROL THEORY AND ITS APPLICATION		
V.M. Voynalovich: Analysis of Efficient and Matched Solutions in Two-Level Systems	27	28
T.V. Vorontsova, V.S. Ponomarenko, and V.S. Stepashko: Multicriterial Planning of the Operational Modes of the Dnepr Reservoirs with Forecast Estimation of Water Quality	35	35
M.Yu. Vasil'ev: Synthesis of an Adaptive Control System Using Ellipsoidal Estimation	40	41
V.N. Pshenichnyy and S.V. Kirichenko: On the Optimal Impulse Correction Problem	48	48
F.A. Aliyev, B.A. Bordyug, and V.B. Larin: Factorization of Polynomial Matrices with Respect to the Imaginary Axis and the Unit Circle	51	51
P.G. Romaniy: Goal-Oriented Formation of Solutions of Inconsistent Models as a System Optimization Problem	60	58
ECONOMIC AND MANAGEMENT SYSTEMS		
M.D. Godlevskiy: An Algorithm for Correcting Contradictory Models of Multicriterial Problems of Planning the Development of Large Technical and Economic Systems	68	66

	English Page	Russian Page
BRIEF COMMUNICATIONS		
Yu.A. Klimenko and Yu.I.Samoylenko: Analyzing the Switching Dynamics of a Bistable Nonlinear Oscillator	75	72
S.F. Kozubovskiy and V.V. Kupriyanov: Method of Group Data Handling in Problems of Control of Ventilators Productivity	80	75
V.V. Pavlova: An Approach to the Construction of Escape Algorithms for an Ergatic System in an "Escape-Intercept" Game	84	78
A.G. Ivakhnenko: Sorting Methods in Self-Organization of Models and Clusterizations (Review of New Basic Ideas) Iterative (Multirow) Polynomial GMDH Algorithms	88	82

Number 5

THE DYNAMICS OF CONTROL SYSTEM PROBLEMS		
Yu.I. Samoylenko: Logic Transformation in Phase Flows of Dynamic Systems	1	3
IDENTIFICATION AND ADAPTIVE CONTROL METHODS		
G.M. Bakan and N.N. Kussul': Fuzzy Ellipsoidal Sets in Nonstatic Estimation Problems	8	11
INFORMATION PROCESSING METHODS		
V.V. Gritsyk and R.M. Palenichka: A Fast Algorithm for Rank Filtering of Images	15	18
CONTROL AND OPTIMIZATION OF DISTRIBUTED-PARAMETER SYSTEMS		
S.V. Azarenkov: Solution of the Problem of Controlling a Stationary Acoustic Field by Discrete Measurements	20	23
A.G. Mashkovskiy: Stabilizing a Ring Suspended in a Magnetic Field by a Parametric-Pumping Regulator	27	29
MODELING COMPLEX SYSTEMS OF PHYSICAL-CHEMICAL PROCESSES AND FIELDS		
V.V. Gorin: A Kinetic Approach to the Description of a Dynamic System with Incomplete Information	32	35
Yu.A. Klimenko: Switching Process Dynamics in a Bistable Weakly Dissipative Nonlinear Oscillator	36	39
ROBOTS AND ARTIFICIAL INTELLIGENCE SYSTEMS		
V.I. Vasil'ev, V.I. Sushko, and T.V. Batakazina: Synthesizing Linear Solutions in a Continuous Space during Training for Pattern Recognition	40	43
A.D. Gol'tsev: Structural and Functional Organization of a Neuron-Like Net Intended for Visual Pattern Recognition	45	48
BRIEF COMMUNICATIONS		
T.I. Aksenova: Sufficient Convergence Conditions for External Criteria for Model Selection	49	53
V.M. Andropov: Approximation Analysis of Computer Network Operation	54	56
A.M. Bukchin: A Method for Solving a Discrete Problem of Optimal Control of a Queueing System with Multidimensional Input Flows	59	60
V.I. Gostev and V.I. Polivanov: The Stability of Automatic Control Systems with Digital Regulators of Two Kinds	63	64

	English Page	Russian Page
V.V. Kozorez: Parametric Stabilization of Superconducting Dynamic Systems	67	67
A.V. Luk'yanets and A.Yu. Spirin: A Program System for the Design of Means for the Control of Information Flows	72	71
V.V. Pavlov and A.A. Timashov: Set Image of the State of a Conflict in the Problem of Choosing the Trajectory of Object Motion	76	74
G.P. Poveshchenko, Ye.L. Samorodov, and Yu.N. Chekhovoy: Some Capabilities of Control of Distributed Dispersive Systems	79	76
M.P. Selivanova and E.P. Tikhonov: A Method of Measuring the Density of Two-Phase Media in Dynamics	83	79
O.N. Solomakha: Synthesis of Control Algorithms for the Motion of Combined Continuous-Discrete Systems	87	83

Number 6

PROBLEMS OF CONTROL SYSTEM DYNAMICS

V.I. Zubov: Construction of Controlling Force Fields	1	3
Yu.I. Samoylenko: Transformation of Discrete Information in a System of Nonlinear Oscillators	15	16
V.Ye. Vishnevskiy: Padé Approximation of Lie Transformations in Nonlinear Response-Speed Problems	22	23
S.Ye. Chimishkyan: Normal Approximation, Numerical Range, and Boundary Criteria for Absolute Stability of Nonlinear Multiply Connected Automatic Control Systems	33	32

CONTROL IN TECHNICAL SYSTEMS

L.M. Boychuk and G.S. Finin: A Method of Controlling Objects with Variable Parameters Based on Using Coordinating Systems	37	36

METHODS OF IDENTIFICATION AND ADAPTIVE CONTROL

V.I. Meleshko and T.V. Tkachenko: Dynamic Identification by Factorized Recursion Methods	45	44
R.M. Palenichka: An Adaptive Algorithm for Binary Segmentation of Images	51	49

MODELING OF COMPLEX SYSTEMS

V.Ye. Kapustyan: Asymptotic Analysis of Optimal Control for a Transport Particle Process	57	56

OPTIMAL CONTROL

V.B. Larin: The Generalized Riccati Equation, Orthogonal Projectors, and Factorization of Matrix Polynomials	72	70
M.M. Khrustalev and M.V. Azanov: A Parametric Family of Generating Functions and Sufficient Conditions for the Optimality of Discontinuous Systems	78	75
A.A. Belousov and A.A. Chikriy: Global Controllability in Game Problems of Dynamics	85	81